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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PENDLETON, BRIAN T

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 06/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/644,752

Applicant(s)

RILEY, VICTOR ANDREW

Examiner

Brian T. Pendleton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 3/27/06 have been fully considered but they are not persuasive. With regard to the Slater reference, Applicant argues that the reference does not teach placing a microphone near an aircraft component. Examiner disagrees with that characterization. Specifically, page 4 lines 6-10 of Applicant's specification indicates that the aircraft components include a cockpit 240. Slater discloses a microphone in a cockpit, therefore that claim limitation is met. Regarding the combination of Monroe '458 and Monroe '601, Applicant alleges that Monroe '458 does not seem to indicate that microphones are placed adjacent to aircraft components. Examiner points to column 2 lines 57-63 that disclose sensors located on a wing, engine mount, and various other points on the airframe. As to Monroe '601, the reference teaches a speaker 240 for broadcasting audio from sensors. One of the sensors is a cockpit voice microphone. As stated above, Applicant has taught the use of a microphone is a cockpit and has defined said cockpit as an aircraft component. Thus the reference teaches the limitation of providing audio output indicating operation of at least one aircraft component. The combination is proper because one of ordinary skill in the art would have wanted monitoring of aircraft events, as taught by Monroe '458 in real-time, as taught by Monroe '601. As to the rejection of claims 12 and 24, Agnello provides the feature of psychoacoustic modeling with respect to mixing.

Applicant's arguments, see page 8 of the Remarks, filed 3/27/06, with respect to claims 1, 5, and 8 have been fully considered and are persuasive. The rejection of the claims with respect to the Bunds, Jr. reference has been withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Slater, US Patent 4,941,187. Slater discloses an intercom apparatus for an aircraft comprising audio inputs 58 from a plurality of microphones, mixer 54, and audio outputs from amplifiers 30a, 30b. As to claim 5, the audio output is received by a headset. Regarding claim 8, the microphones are placed in the cockpit.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe, US Patent 5,798,458 (Monroe '458) in view of Monroe, US Patent 6,545,601 (Monroe '601). Monroe '458 discloses an acoustic sensor system for an aircraft comprising a plurality of microphones 19a-19m, mixer 96, and pilot indicator 55. Monroe '458 does not disclose that the mixed audio output is provided to a speaker for indicating the operation of at least one aircraft component. Monroe '601 discloses an aircraft system comprising a plurality of video and audio

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sensors, and speaker 240 in figure 13. The audio signal is output through the speaker 240 (see column 22 lines 18-20), the audio used to monitor critical components of the aircraft (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Monroe '458 by including a speaker, as taught by Monroe '601, for the purpose of real-time monitoring of the audio signals that are recorded by recorder 52. The benefit was that aircraft component problems could be corrected as they occur. Claims 1 and 4 are met.

Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe '458 in view of Monroe '601 as applied to claim 1 above, and further in view of Bellman, Jr. The combination of Monroe '458 and Monroe '601 does not disclose that the speaker is in a headset. Bellman, Jr. discloses a video and audio surveillance system in an aircraft comprising a headphone for outputting the sound received. Thus, it was well known in the art to use headphones for reproducing microphone sounds received aboard an aircraft. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combination to include a headphone, as taught by Bellman Jr. for the purpose of high quality, low noise, audio reproduction. As to claim 11, Bellman Jr. teaches a reference microphone for use in noise cancellation.

Claims 2, 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe '458 in view of Monroe '601 as applied to claim 1 above, and further in view of Agnello, US Patent 5,228,093. The combination of Monroe '458 and Monroe '601 does not disclose providing settings to the mixing step where the settings are based on audio inputs and a psycho-acoustic model. Agnello discloses a mixing step for signals 22 and 24 comprising spectral

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content analyzer 20 and modifier 30. The objective of the invention was to combine the signals in such a fashion as to reduce psychoacoustic masking. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the mixer 96 of the combination of Monroe '458 and Monroe '601 to include the spectral analyzer 20 and modifier 30 as taught by Agnello, for the purpose of ensuring that all sound sources are heard. Claim 2 is met. As to claim 3, the spectral content analyzer 20 and modifier 30 are used to determine masked signals (of the first signal 22) based on frequency and amplitude and determine an unmasking strategy (which is done by calculating means 33, 34, and scaler 35). Regarding claim 6, the amplitude level of the signals in Agnello are altered.

Claims 12-15, 17, 19-21, 24-27, 29, 31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe '458 in view of Monroe '601 and further in view of Agnello. The combination of Monroe '458 and Monroe '601 teaches an apparatus and method comprising an aircraft, a plurality of microphones, and a mixer, whereby the microphones are located near aircraft components and give an audio indication of the operation of the aircraft components. The combination does not disclose providing settings to the mixer that mixes the audio inputs based on the audio inputs and a psycho-acoustic model. Agnello discloses a mixing step for signals 22 and 24 comprising spectral content analyzer 20 and modifier 30. The objective of the invention was to combine the signals in such a fashion as to reduce psychoacoustic masking. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the mixer 96 of the combination of Monroe '458 and Monroe '601 to include the spectral analyzer 20 and modifier 30 as taught by Agnello, for the purpose of ensuring that all sound sources are heard. Claims 12 and 24 are met. As to claims 13, 14, 25, and 26, the spectral content analyzer

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20 and modifier 30 are used to determine masked signals (of the first signal 22) based on frequency and amplitude and determine an unmasking strategy (which is done by calculating means 33, 34, and scaler 35). Regarding claims 15 and 27, the combination discloses a speaker. Per claims 17 and 29, the amplitude level of the signals in Agnello are altered. As to claims 19-21, 31, and 32, the microphones taught in Monroe '458 are coupled to the airframe (see figure 1) and are located in the aircraft itself (column 2 lines 57-65).

Claims 16 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe '458 in view of Monroe '601 and further in view of Agnello as applied to claims 14 and 26 above, and further in view of Bellman, Jr.. The combination of Monroe '458, Monroe '601 and Agnello does not disclose that the audio output is produced by a headset. Bellman, Jr. discloses a video and audio surveillance system in an aircraft comprising a headphone for outputting the sound received. Thus, it was well known in the art to use headphones for reproducing microphone sounds received aboard an aircraft. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combination to include a headphone, as taught by Bellman Jr. for the purpose of high quality, low noise, audio reproduction.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe '458 in view of Monroe '601 as applied to claim 1 above, and further in view of Zampini et al, US Patent 5,319,359. The combination does not disclose overriding the mixer with a manual mixer that comprises a level control input. Nevertheless, it was well known in the art of mixing to implement a manual or automatic mixer, as evidenced by Zampini (see column 1 lines 11-18). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the

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combination to include a manual mixing, as taught by Zampini, for the purpose of increasing its versatility.

Claims 18 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe '458 in view of Monroe '601 and further in view of Agnello as applied to claims 12 and 25 above, and further in view of Zampini et al. The combination does not disclose overriding the mixer with a manual mixer that comprises a level control input. Nevertheless, it was well known in the art of mixing to implement a manual or automatic mixer, as evidenced by Zampini (see column 1 lines 11-18). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the combination to include a manual mixing, as taught by Zampini, for the purpose of increasing its versatility.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe '458 in view of Monroe '601 as applied to claim 1 above, and further in view of Prus, US Patent 6,275,590. The combination does not disclose detecting an aircraft operation and synthesizing a sound corresponding to the detected aircraft operation. Prus discloses a engine noise simulating device for a vehicle comprising a tachometer 16 which is coupled to an engine and a synthesizer for simulating a sound based on the revolutions per minute of the engine. Therefore, it was well known in the art to detect a vehicle operation and synthesize a sound corresponding to that operation. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combination of Monroe '458 and Monroe '601 to include the sound synthesizer, as taught by Prus, said sound synthesizer corresponding to an engine aircraft operation, for the purpose of enhancing the sound of the operation of the aircraft which increases

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the pilot's awareness. Claim 9 is met. As to claim 10, the aircraft engine operation is a type of aircraft control operation.

Claims 22, 23, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe '458 in view of Monroe '601 and further in view of Agnello as applied to claims 12 and 24 above, and further in view of Prus. The combination does not disclose detecting an aircraft operation and synthesizing a sound corresponding to the detected aircraft operation. Prus discloses a engine noise simulating device for a vehicle comprising a tachometer 16 which is coupled to an engine and a synthesizer for simulating a sound based on the revolutions per minute of the engine. Therefore, it was well known in the art to detect a vehicle operation and synthesize a sound corresponding to that operation. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combination of Monroe '458, Monroe '601, and Agnello to include the sound synthesizer, as taught by Prus, said sound synthesizer corresponding to an engine aircraft operation, for the purpose of enhancing the sound of the operation of the aircraft which increases the pilot's awareness. Claims 22 and 33 are met. As to claims 23 and 34, the aircraft engine operation is a type of aircraft control operation.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (571) 272-7527. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian T. Pendleton
Primary Examiner
Art Unit 2615



btp